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Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.13/BJK/WMM/Gradation/2015-16

15.06.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.

Agency : **Mr. B.J. Kumar,** Contractor, Bangalore.

Name of Work : Pot holes filling in Ravindranagara and Mallasandra area in Ward No.13, BBMP, Bangalore.

Reference : BBMP/AEE/SSD/DZ/PR/2015-16 Dated: 11.06.2015

Date of Testing : 15.06.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **8410**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	90	90	1.1	98.9	95-100
22.4	2900	2990	35.6	64.4	60-80
11.2	1800	4790	57.0	43.0	40-60
4.75	1200	5990	71.2	28.8	25-40
2.36	725	6715	79.8	20.2	15-30
0.600	775	7490	89.1	10.9	8-22
0.075	660	8150	96.9	3.1	0-8

Note:

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AE-13

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

M/s. Civil-Tech Consultants & Engineers
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Job No.: CTCE/BBMP/W.No.13/BJK/WMM/AIV/2015-16

15.06.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	**Mr. B.J. Kumar,** Contractor, Bangalore.
Name of the Work	Pot holes filling in Ravindranagara and Mallasandra area in Ward No.13, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16 Dated: 11.06.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	15.06.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	81	82	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines	21.26	21.47	
	100* (W_2/W_1)%			**21.36**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.13/BJK/WMM/S-T/2015-16 15.06.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	**Mr. B.J. Kumar,** Contractor, Bangalore.
Name of Work	Pot holes filling in Ravindranagara and Mallasandra area in Ward No.13, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2015-16 Dated: 11.06.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	15.06.2015

Result : Flakiness Index = **12.32%**

Elongation Index = **13.69%**

Result : Combined Flakiness & Elongation index 26.01%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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A6-13

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JobNo: CTCE/BBMP/W.No.13/BJK/BC/Bitumen/2015-16 22.06.2015

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
AGENCY	**Mr. B.J. Kumar,** Contractor, Bangalore.
NAME OF THE WORK	Pot holes filling in Ravindranagara and Mallasandra area in Ward No.13, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2015-16 Dated: 11.06.2015
SAMPLE I/D	Roads in Ravindranagara Ward No.13.
DATE OF TESTING	22.06.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	473.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	26.50
7. Bitumen content in %	5.20	5.30
8. Average	**5.25**	

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AE-13

22/6

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
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ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
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JobNo: CTCE/BBMP/W.No.13/BJK/BC/Bitumen/2015-16 22.06.2015

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IS 2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
AGENCY	**Mr. B.J. Kumar,** Contractor, Bangalore.
NAME OF THE WORK	Pot holes filling in Ravindranagara and Mallasandra area in Ward No.13, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2015-16 Dated: 11.06.2015
SAMPLE I/D	Roads in Ravindranagara Ward No.13.
DATE OF TESTING	22.06.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	43.25	9.12	9.12	90.88	79-100
9.5	32.26	6.81	15.93	84.07	70-88
4.75	68.52	14.46	30.39	69.61	53-71
2.36	65.25	13.77	44.15	55.85	42-58
1.18	51.25	10.81	54.96	45.04	34-48
0.6	63.25	13.34	68.31	31.69	26-38
0.3	50.25	10.60	78.91	21.09	18-28
0.15	36.25	7.65	86.56	13.44	12-20
0.075	36.25	7.65	94.20	5.80	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	37.52	7.92	7.92	92.08	79-100
9.5	47.52	10.04	17.96	82.04	70-88
4.75	73.25	15.47	33.43	66.57	53-71
2.36	61.25	12.94	46.37	53.63	42-58
1.18	73.25	15.47	61.84	38.16	34-48
0.6	43.26	9.14	70.97	29.03	26-38
0.3	36.25	7.66	78.63	21.37	18-28
0.15	40.25	8.50	87.13	12.87	12-20
0.075	37.52	7.92	95.05	4.95	4-10

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